China launches first X-ray space telescope

A Long March-4B rocket carrying X-ray space telescope to observe black holes, pulsars and gamma-ray bursts blasts off from Jiuquan Satellite Launch Center in northwest China's Gobi Desert, June 15, 2017. [Photo/Xinhua]

China launched its first X-ray space telescope to observe black holes, pulsars and gamma-ray bursts, via a Long March-4B rocket from Jiuquan Satellite Launch Center in northwest China's Gobi Desert at 11 a.m. Thursday.

The 2.5-tonne Hard X-ray Modulation Telescope (HXMT), dubbed Insight, was sent into an orbit of 550 kilometers above the earth to help scientists better understand the evolution of black holes, and the strong magnetic fields and the interiors of pulsars.

Through the telescope, scientists will also study how to use pulsars for spacecraft navigation, and search for gamma-ray bursts corresponding to gravitational waves.

The result of the wisdom and efforts of several generations of Chinese scientists, Insight is expected to push forward the development of space astronomy and improve space X-ray detection technology in China.

China’s BeiDou navigation system to expand to B&R nations

A model of the BeiDou Satellite Navigation system exhibited in Zhuhai [File photo/Xinhua]

Developers involved with the BeiDou Satellite Navigation system are preparing to make the next step forward in turning the Chinese-produced system into a major global player.

The BeiDou Navigation Satellite System is world’s fourth navigation satellite system, which also includes the GPS system run by the United States, the GLONASS system in Russia and the Galileo system developed by the European Union.

With its accuracy reaching centimeter-levels, the system can provide precise positioning services for urban construction, as it will be able to help accurately place underground gas and and power lines, along with other connections necessary for today’s modern buildings.

Miao Qianjun, secretary-general of Global Navigation Satellite System and Location Based Service Association of China says, “The National BeiDou Precise Service Network so far covers 317 cities across the country, and can provide precise location information, accurate time information and short-message communication service in almost all application areas.”

Steps are now being taken to make Beidou a global network.

“Next month we’re going to officially start networking and launching the

BeiDou-3 system, which will provide global coverage. Probably in mid-July, we will launch the first two satellites on one rocket," Ran Chengqi, director of the China Satellite Navigation System Management Office says. "By the end of next year, we will have put 18 new 18 satellites into orbit, including between six and eight satellites slated for this year."

This should allow Beidou to start offering services to customers in countries participating in the Belt and Road Initiative by next year.

Over 30 million chips which run the Beidou system have been sold to manufacturers of mobile phones and other systems which can use navigation technology.

Beidou's high-precision board cards and antennas, for industrial use, are now being exported to more than 70 countries and regions, over 30 of which are along the Belt and Road.

"For example, Beidou can be used to help with the construction of overseas ports and offer service to our country's high-speed rail services. After the Beidou system becomes available globally, those countries will be able to use the Beidou system to help boster their national economy and improve people's livelihood," Sun Jiadong of the Chinese Academy of Sciences says.

China started building its own satellite navigation system in 2000, sending up just two satellites at first to end Chinese dependence on the United States' GPS system.

Since 2012, Beidou has been able to provide navigation, time and text messaging services across the Asia and Pacific region.

As of last year, satellite navigation became a 30 billion U.S. dollars business in China, with Beidou able to make up around 30-percent of the market share.

By 2020, Chinese officials anticipate satellite navigation services will end up being close to a 60-billion U.S. dollar industry.

Maglev train nears completion in Beijing

A maglev train undergoes testing recently on Beijing's new S1 line, which is scheduled to open later this year. [Photo/China Daily]

Beijing's first mid- to low-speed magnetic levitation railway line is preparing for its debut later this year.

Services on Line S1 will run from Shimenying station in western Mentougou district to Pingguoyuan station in Shijingshan district, a transfer station for Line 1.

The maglev line will have eight stations stretching over 10.2 kilometers and will run at a maximum speed of 100 kilometers per hour. The whole journey will take about 20 minutes, including the time for passengers to get on and off.

The train, manufactured by CRRC Tangshan Co in Hebei Province, has six cars and is designed to carry 1,032 passengers at a time.

According to the company, 10 trains will be put into use in the first stage of operation.

The main feature of the maglev train is that it doesn't have wheels, unlike the current metro trains. That makes it more comfortable and safer, according to CRRC Tangshan.

Using electromagnetic forces, the trains are elevated about 1 centimeter above the tracks, avoiding friction and resulting in a smooth ride.

Tracks are specially designed to prevent the trains from overturning or derailing, the company said.

The Chinese Academy of Sciences' Institute of Electrical Engineering was

quoted by China Central Television as saying that the magnetic fields of the maglev trains have less effect on human health than TV sets.

The debugging process for Line S1 is expected to end in November, followed by a monthlong trial run, said Sun Hechuan, deputy general manager of Beijing Enterprises Holdings Maglev Technology Development Co.

The country's first domestically designed and manufactured maglev line began operating a year ago in Changsha, capital of Hunan province.

Beijing unearths 3,000 pieces of cultural relics in first half of 2017

This year Beijing has excavated and protected more than 1,300 ancient tombs of different times in history, unearthing over 3,000 pieces or sets of cultural relics as of May 30.

From February 2 to May 14 this year, the capital city's sub-center in Tongzhou District has seen 276 ancient tombs excavated over a total area of 99,884 square meters for archaeological prospection. More than 1,000 pieces or sets of cultural relics were unearthed, including pottery, porcelain, bronze, gold and silver wares.

In Yanqing District, on the 2.54 million-square-meter area of archaeological prospection, a total of 1,100 tombs have been discovered, 845 of which have been dug out, including the brick-chambered tombs of the Eastern Han Dynasty, Wei and Jin Dynasties, Tang Dynasty and Jin Dynasty as well as the earth pit tombs of the Ming Dynasty and Qing Dynasty. Among them, seven were well-preserved family cemeteries of the Wei and Jin Dynasties, which are rare in Beijing.

In the first half of this year, during the archaeological excavation of the Ruyuan Garden in the Old Summer Palace, the overall layout including the pavilions, open halls, rockery and roads have been uncovered for the first time. Nearly 1,000 pieces of cultural relics have been discovered in the garden, such as gold bricks, tiles and the stone inscription of Emperor Jiaqing's handwriting.

Beijing High-Tech Expo signs US$10.8b

deals

The 20th China Beijing International High-Tech Expo (CHITEC) ended in the Chinese capital on June 10, attracting more than 200,000 attendees. A total of 82 projects of technology trading and industrial cooperation contracts have been signed with the total amount of 73.326 billion yuan (about US$10.8 billion) during the three-day expo.

CHITEC, first launched in 1998, has witnessed the transformation of Chinese sci-tech innovation from the low-end industrial value chain to a higher sci-tech power in the past two decades. This year’s expo featured a number of technologically sophisticated projects such as top-notch Tiangong-2 and COMAC C919, graphene waterborne paint which is a technological breakthrough in the field, and QD image sensor and so on. These original achievement showcase that China is on course to become a world-class sci-tech powerhouse.

According to the organizing committee, deals in the aerospace industry, new generation of information technology and new material amounted to 49.5 billion yuan, while projects aimed at improving people’s lives totaled 20.8 billion yuan.